United States
Environmental Protection
Agency

Environmental
Sciences Division
P.O. Box 93478
Las Vegas, NV 89193-3478

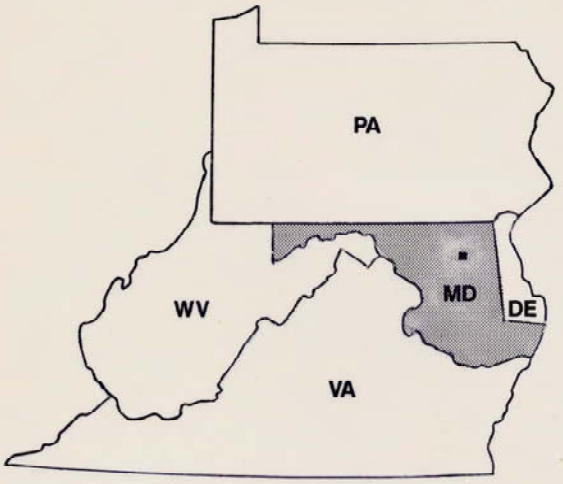
TS-PIC-9903410S/20003410S
January 2000

Research and Development

EPA

AERIAL PHOTOGRAPHIC ANALYSIS INDUSTRIAL ENTERPRISES SITE Rosedale, Maryland

EPA Region 3



TS-PIC-9903410S/20003410S
January 2000

AERIAL PHOTOGRAPHIC ANALYSIS INDUSTRIAL ENTERPRISES SITE

Rosedale, Maryland

by

G. I. Martucci
Environmental Services Division
Lockheed Environmental Systems & Technologies Co.
Las Vegas, Nevada 89119

Contract No. 68-C5-0065

Work Assignment Manager

M. J. Lacerte-Benger
Landscape Ecology Branch
Environmental Sciences Division
Las Vegas, Nevada 89193-3478

ENVIRONMENTAL SCIENCES DIVISION
NATIONAL EXPOSURE RESEARCH LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89193-3478

NOTICE

This document has undergone a technical and quality control/assurance review and has been approved for publication by personnel of the U.S. Environmental Protection Agency, Office of Research and Development, Environmental Sciences Division, Landscape Ecology Branch at Las Vegas, Nevada. It is for internal Agency use and distribution only.

ABSTRACT

This report presents findings from an analysis of aerial photographs of the Industrial Enterprises site located in Rosedale, Baltimore County, Maryland. This analysis includes 13 selected dates of aerial photographs spanning 61 years. The purpose of this analysis is to provide operational remote sensing support to remedial site investigations in U.S. Environmental Protection Agency Region 3. These investigations were conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The analysis of aerial photographs is needed to document landscape morphology, patterns of hazardous waste disposal, and other observable activities and conditions of environmental significance at this Superfund remedial site.

Findings from this analysis indicate that in 1938 the site terrain was an undeveloped marshland and floodplain. In 1943 a ground scar was observed in the southern portion of the site, and the remainder of the site appeared inactive. By 1953 the ground scar appeared to have revegetated, stock pens were visible along the western boundary of the site, and the remainder of the site continued to appear inactive. From 1957 to 1973 solid waste disposal operations were evident onsite and on a site adjacent to the north. Onsite, lagoons filled with dark-toned standing liquid were evident from 1957 to 1960 and were probably filled in by 1964. From 1984 to 1998 the site was observed to be relatively inactive and in a revegetative state. During this span of 61 years, the topography of the site was observed to change from an area with marshland and floodplain to an area comprised primarily of revegetated, elevated fill material. Offsite operations at both a waste disposal facility to the north and an industrial facility to the south were noted, but were not subsequently discussed in detail.

The U.S. Environmental Protection Agency (EPA), Environmental Sciences Division, Landscape Ecology Branch in Las Vegas, Nevada, prepared this report for the EPA Region 3 Hazardous Waste Management Division in Philadelphia, Pennsylvania, and the EPA Office of Emergency and Remedial Response in Washington, D.C.

CONTENTS

FIGURES

INTRODUCTION

This report presents findings from an analysis of aerial photographs of the Industrial Enterprises site (CERCLIS ID# MDD980918387) located in Rosedale, Baltimore County, Maryland (Figures 1 and 2). This analysis includes 13 selected dates of aerial photographs spanning 61 years: 1938, 1943, 1953, 1957, 1960, 1964, 1966, 1968, 1971, 1973, 1984, 1992, and 1998. The photographs include black-and-white and conventional color film. The purpose of this analysis is to provide operational remote sensing support to remedial site investigations for Region 3 of the U.S. Environmental Protection Agency. These investigations were conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The analysis of aerial photographs is needed to document landscape morphology, patterns of hazardous waste disposal, and other observable activities and conditions of environmental significance at this Superfund remedial site.

Collateral information (obtained from the EPA Region 3 Internet site narrative and EPA Region 3 personnel) states that the Industrial Enterprises site was leased in 1956 to expand the landfilling operations of the adjacent 68th Street Dump. According to the collateral information, the Industrial Enterprises site was primarily a marshland which was extensively landfilled from the early 1950's until the 1970's. Operations at the Industrial Enterprises landfill included the disposal of refuse in the floodplain, the dumping of waste oil into a pit excavated near Herring Run, and the salvaging of metal containers and cardboard. In August 1979, state inspectors discovered more than 20 buried drums in the western portion of this landfill. Reportedly, samples of the drum contents revealed potentially hazardous concentrations of metals (EPA 1999).

Findings from this analysis indicate that in 1938 the site terrain was an undeveloped marshland and floodplain. In 1943 a ground scar was observed in the southern portion of the site, and the remainder of the site appeared inactive. By 1953 the ground scar appeared to have revegetated, stock pens

were visible along the western boundary of the site, and the remainder of the site continued to appear inactive. From 1957 to 1973 solid waste disposal operations were evident onsite and on a site adjacent to the north. Onsite, lagoons filled with dark-toned standing liquid were evident from 1957 to 1960 and were probably filled in by 1964. From 1984 to 1998 the site was observed to be relatively inactive and in a revegetative state. During this span of 61 years, the topography of the site was observed to change from an area with marshland and floodplain to an area comprised primarily of revegetated, elevated fill material. Offsite operations at both a waste disposal facility to the north and an industrial facility to the south were noted, but were not subsequently discussed in detail.

A Glossary, defining features or conditions identified in this report, follows the Photographic Analysis section. Sources for all maps, aerial photographs, and collateral data used in the production of this report are listed in the References section. A list of all aerial photographs that were identified and evaluated for potential application to this study can be obtained by contacting the EPA Work Assignment Manager. Historical aerial photographs used in the analysis of this site have been digitally scanned and printed for use in this report. A transparent overlay with interpretative data is affixed to each of the digital prints. See the Methodology section for a discussion of the scanning and printing procedures.

The U.S. Environmental Protection Agency (EPA), Environmental Sciences Division, Landscape Ecology Branch in Las Vegas, Nevada, prepared this report for the EPA Region 3 Hazardous Waste Management Division in Philadelphia, Pennsylvania, and the EPA Office of Emergency and Remedial Response in Washington, D.C.

Figure 1. Study area location map, Maryland (USGS 1972). Approximate scale 1:2,500,000.

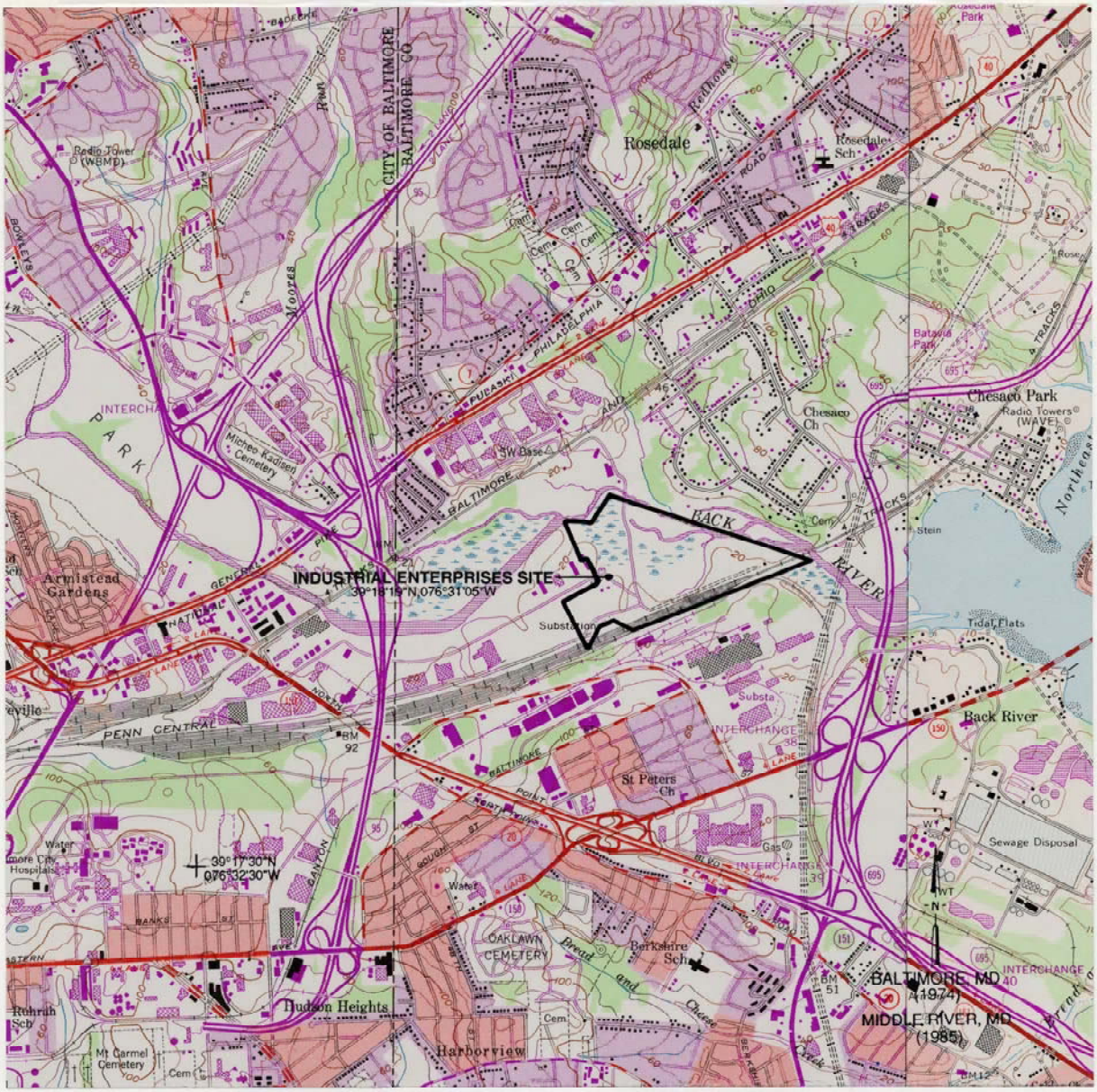


Figure 2. Local study area location map, Baltimore East, Maryland (USGS 1974), and Middle River, Maryland (USGS 1985). Scale 1:24,000.

METHODOLOGY

This report was prepared using a standard methodology that includes the following steps:

- data identification and acquisition,
- photographic analysis and interpretation, and
- graphics and text preparation.

These steps are described below. Subsections also address details related to specific kinds of analyses that may be required to identify environmental features such as surface drainage and wetlands. All operational steps and processes used to perform this work (including data identification and acquisition, photographic analysis and interpretation, and graphics and text preparation) adhere to strict QA/QC guidelines and standard operating procedures (SOPs). These guidelines and procedures are documented in the Master Quality Assurance Project Plan (QAPP) prepared for Remote Sensing Technical Support Contract No. 68-C5-0065 (LESAT 1999).

Data identification and acquisition included a search of government and commercial sources of historical aerial film for the study area. Photographs with optimal spatial and temporal resolution and image quality were identified for acquisition. In addition, U.S. Geological Survey (USGS) topographic maps were obtained to show the study area location and to provide geographic and topographic context.

To conduct this analysis, the analyst examined diapositives (transparencies) of historical aerial photographs showing the study area. Diapositives are most often used for analysis instead of prints because the diapositives have superior photographic resolution. They show minute details of significant environmental features that may not be discernible on a paper print.

A photographic analyst uses a stereoscope to view adjacent, overlapping pairs of diapositives on a backlit light table. In most cases, the stereoscope

is capable of various magnifications up to 60 power. Stereoscopic viewing involves using the principle of parallax (observing a feature from slightly different positions) to observe a three-dimensional representation of the area of interest. The stereoscope enhances the photo interpretation process by allowing the analyst to observe vertical as well as horizontal spatial relationships of natural and cultural features.

The process of photographic analysis involves the visual examination and comparison of many components of the photographic image. These components include shadow, tone, color, texture, shape, size, pattern, and landscape context of individual elements of a photograph. The photo analyst identifies objects, features, and "signatures" associated with specific environmental conditions or events. The term "signature" refers to a combination of components or characteristics that indicate a specific object, condition, or pattern of environmental significance. The academic and professional training, photo interpretation experience gained through repetitive observations of similar features or activities, and deductive logic of the analyst as well as background information from collateral sources (e.g., site maps, geologic reports, soil surveys) are critical factors employed in the photographic analysis.

The analyst records the results of the analysis by using a standard set of annotations and terminology to identify objects and features observed on the diapositives. Significant findings are annotated on overlays attached to the photographic or computer-reproduced prints in the report and discussed in the accompanying text. Annotations that are self-explanatory may not be discussed in the text. The annotations are defined in the legend that accompanies each print and in the text when first used.

Objects and features are identified in the graphics and text according to the analyst's degree of confidence in the evidence. A distinction is made between certain, probable, and possible identifications. When the analyst believes the identification is unmistakable (certain), no qualifier is used. Probable is used when a limited number of discernible characteristics allow the analyst to be reasonably sure of a particular identification. Possible is used when only a few characteristics are discernible, and the analyst can only infer an identification.

The prints in this report have been reproduced, either by photographic or computer methods, from the original film. Reproductions are made from the original film and may be either contact (the same size) prints or enlargements, depending on the scale of the original film. Any computer-produced prints used in this report are generated from scans of the film at approximately 1,300 dots per inch (dpi) and printed at 720 dpi. Although the reproductions allow effective display of the interpretive annotations, they may have less photographic resolution than the original film. Therefore, some of the objects and features identified in the original image and described in the text may not be as clearly discernible on the prints in this report.

Study area boundaries shown in this report were determined from aerial photographs or collateral data and do not denote legal property lines or ownership.

Surface Drainage

The surface drainage analysis produced for this report identifies the direction and potential path that a liquid spill or surface runoff would follow based on the topography of the terrain and the presence of discernible obstacles to surface flow. The analyst determines the direction of surface drainage by stereoscopic analysis of the aerial photographs and by examining USGS topographic maps. Site-specific surface drainage patterns are annotated on the map or photo overlay. Where the direction of subtle drainage cannot be determined, an indeterminate drainage line symbol is used. Regional surface flow is ascertained from the USGS topographic maps.

PHOTOGRAPHIC ANALYSIS

This report presents findings from an analysis of aerial photographs of the Industrial Enterprises site located in Rosedale, Baltimore County, Maryland (Figure 2). The site is situated approximately 1 kilometer (0.6 mile) southeast of the intersection of State Route 40 and Interstate Route 95, and is adjacent to the southern boundary of a site identified as the 68th Street Dump (EPA 1997). The areal extent of the Industrial Enterprises site is approximately 49 hectares (120 acres).

Features referenced in background or collateral material are cited in the text of this analysis. When they are first mentioned in the text, these features are denoted with an asterisk (*). They are also marked with an asterisk each time they appear on the photographs. Features are annotated but not discussed unless observations significant to the objectives of this analysis are noted.

The site is situated between two east-west railways. For the purposes of this discussion, these railways will be referred to as the northern and the southern railway, respectively. Two streams (Herring Run and Moore's Run*) flow southeastward across the northwestern boundary of the site. A third stream (Redhouse Run*) flows southward across the northeastern boundary of the site. These three streams flow southward and eastward through a marshland* and into a floodplain* of the Back River, which eventually flows into the Chesapeake Bay. For the purposes of this discussion, the floodplain initially identified and delineated on the 1938 photograph (Figure 3) is subsequently represented by dashed lines on both the 1957 photograph (Figure 6) and on the 1998 photograph (Figure 15).

APRIL 23, 1938 (FIGURE 3)

Initial coverage of the Industrial Enterprises site shows a marshland prior to development. The central and eastern portions of the site are predominately occupied by a floodplain of the Back River. The eastern side of this floodplain extends beyond the eastern site boundary. The western side of this floodplain merges with a relatively flat and muddy shoreline of the marshland. The shoreline is at the toe of a western slope with a relatively-flat top. Agricultural lands extend from the head of this slope to beyond the western site boundary. In the southwestern portion of the site, an access road (A1) leads from the western site boundary to a probable farmstead situated between two gullies. A network of roads on the northern side of this farmstead connects between the farmstead and the western site boundary. East of access road A1, two flat-topped elevated areas are identified as Hill-1 and Hill-2 for the purposes of this analysis. Segments of another access road (A2) are visible south of access road A1 and along the southern sides of both Hill-1 and Hill-2.

The following offsite features are noted in this initial coverage, but they are not subsequently discussed in detail unless observations significant to the objectives of this analysis are noted: outside the northern site boundary, an east-west (termed northern) railway, Moore's Run, and Redhouse Run are visible. A portion of the undeveloped 68th Street Dump site is also visible and includes a rectangular excavation, a building (B), and an intermittent, unnamed stream. Beyond the western site boundary, agricultural lands are noted. Outside the southern site boundary, an electrical power substation, an east-west (termed southern) railway, and an industrial facility are noted. Outside the eastern site boundary residences are noted.

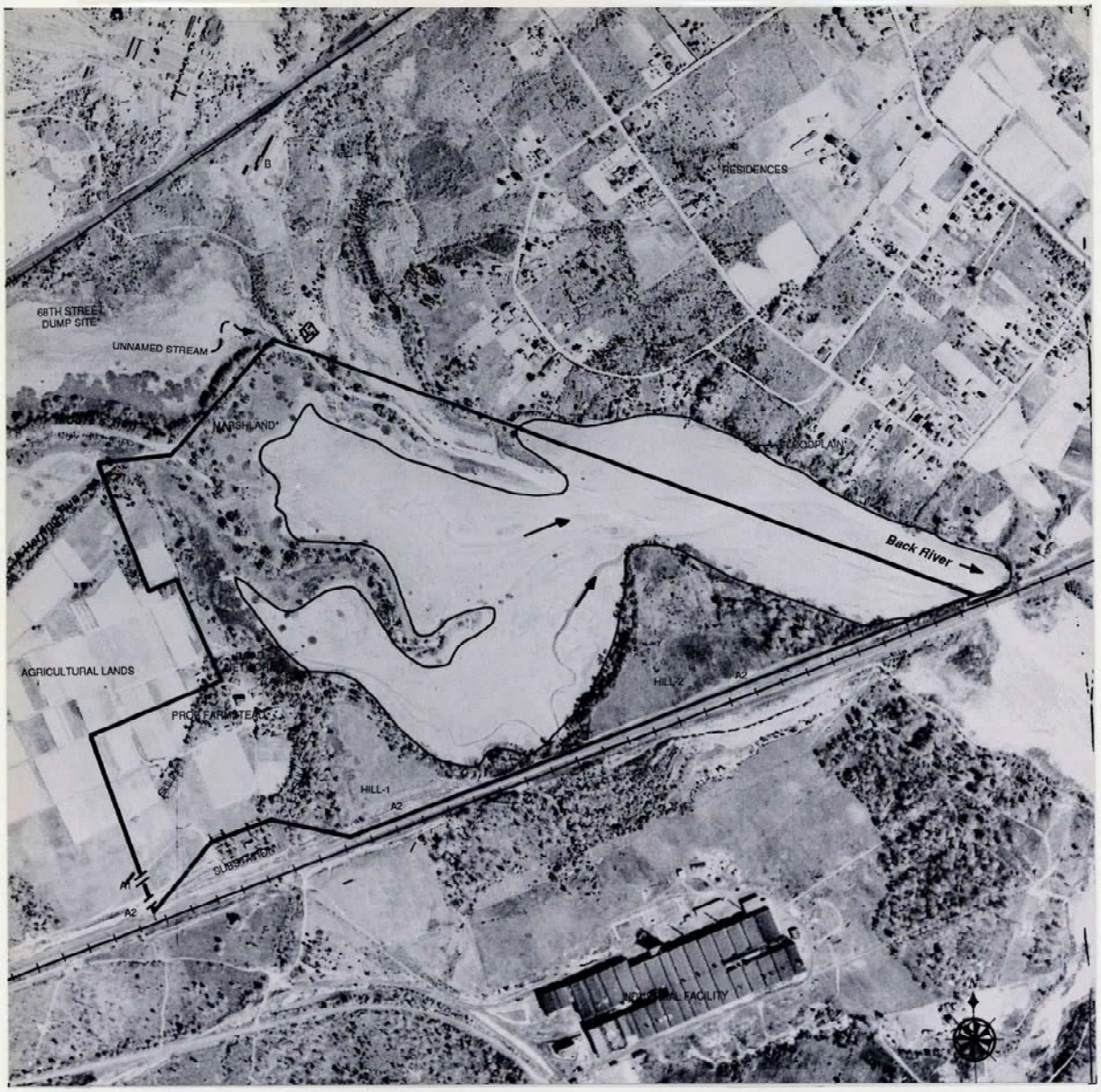


Figure 3. Industrial Enterprises site, April 23, 1938. Approximate scale 1:6,630.

APRIL 25, 1943 (FIGURE 4)

The farmstead observed in 1938 appears relatively unchanged. Probable road construction activity along access road A2 is visible at the southern sides of both Hill-1 and Hill-2. At Hill-1, a trail (Trail-1) extends northward to a ground scar (GS-1) located on the edge of this hill. Mud flats and vegetation (VEG) are visible in the central and eastern portions of the site.

Outside the northern site boundary, a new building has been installed where a rectangular excavation was noted in 1938. Outside the southern site boundary, the following features are noted at and around the industrial facility: accumulations of probable raw materials, two probable trenches (TR) containing standing liquid (SL), an impoundment (IM) containing standing liquid, an area with light-toned material, and drainage eastward toward the Back River.

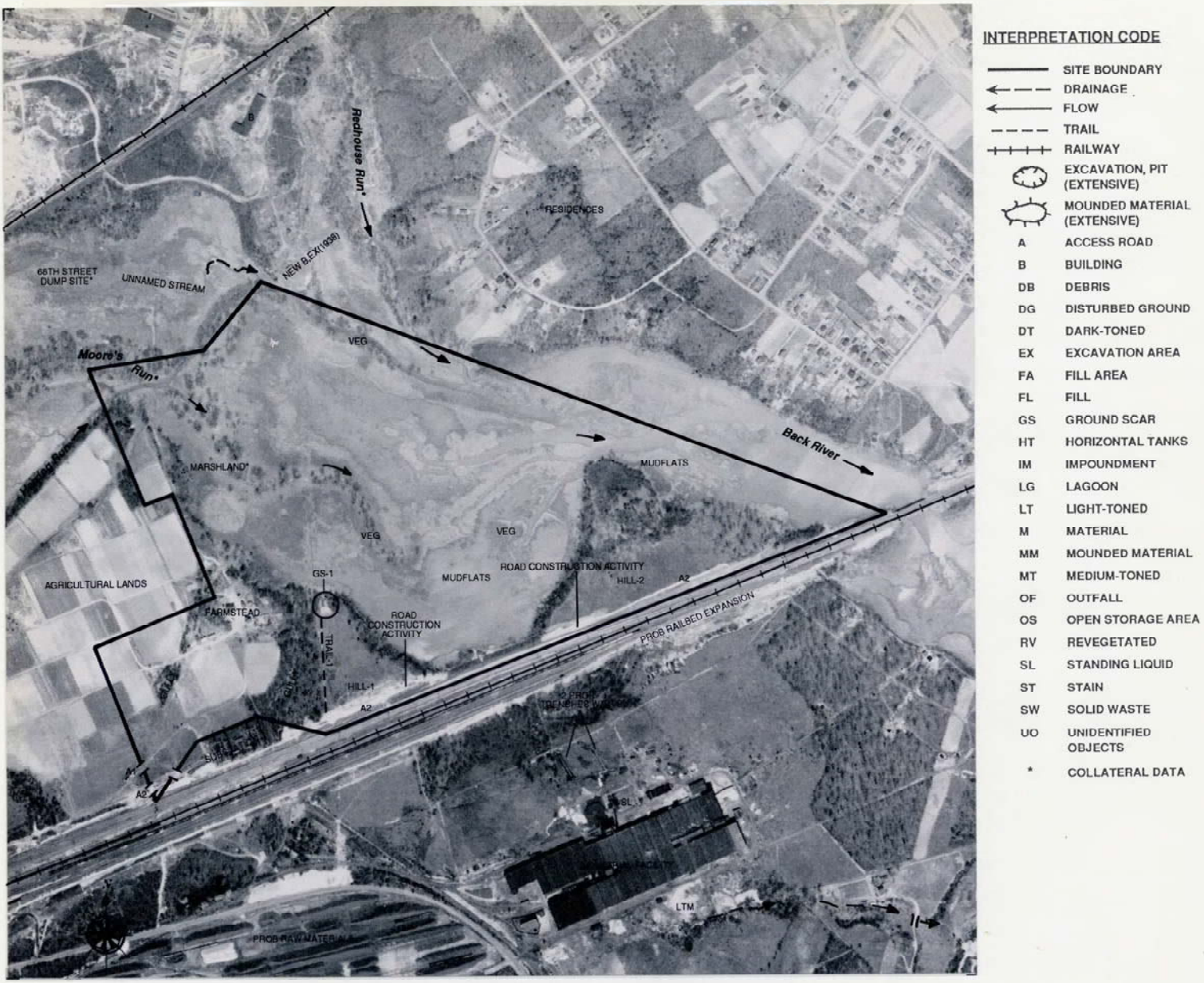
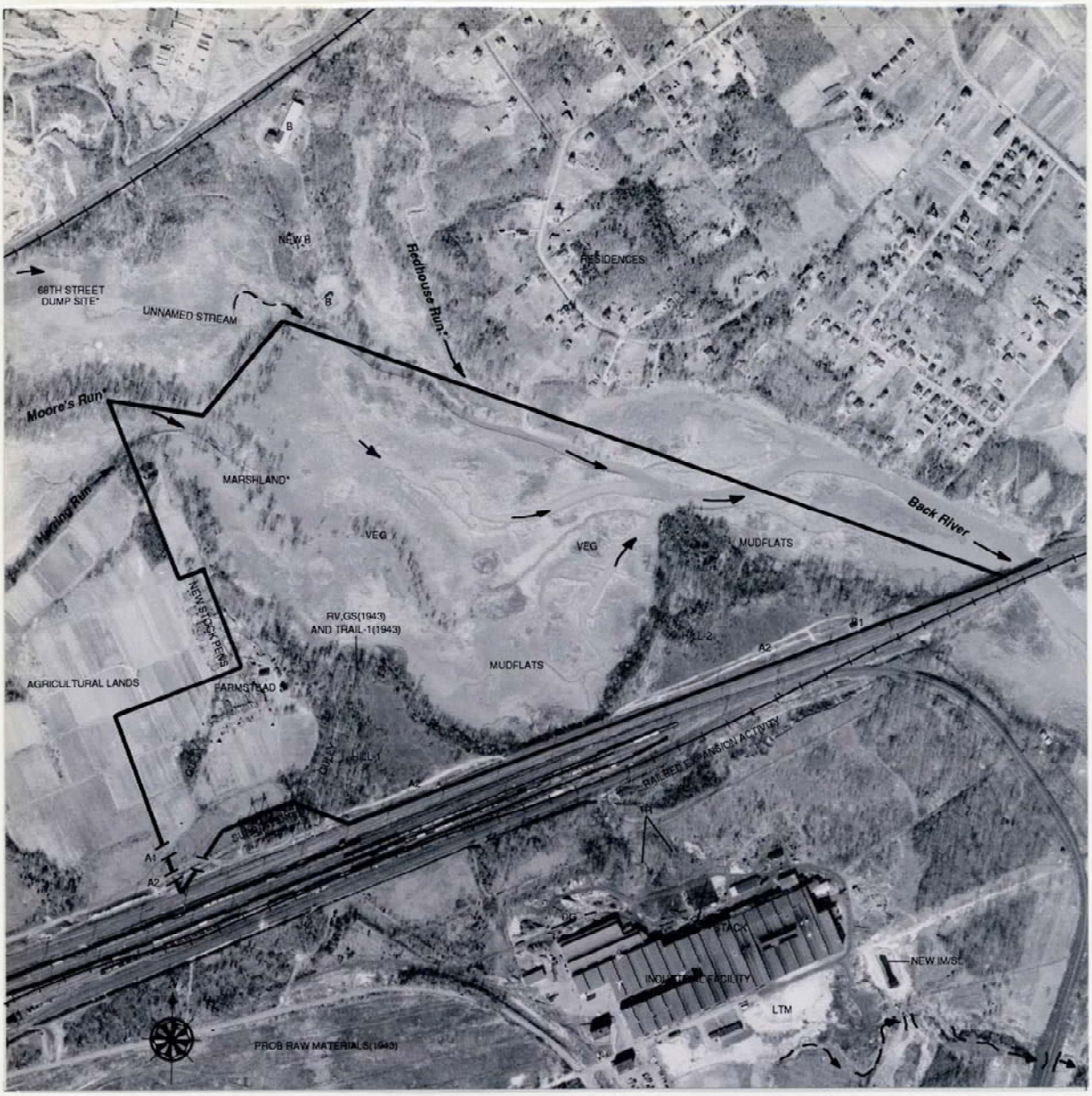


Figure 4. Industrial Enterprises site, April 25, 1943. Approximate scale 1:6,530.

FEBRUARY 14, 1953 (FIGURE 5)

Due to revegetation (RV) the trail and ground scar observed in 1943 are no longer visible at Hill-1. It is probable that operations at the farmstead have increased, due to the presence of new stock pens which extend northward from the farmstead buildings and across the western site boundary.

Outside the northern site boundary, a new building has been installed. Outside the southern site boundary, railbed expansion activity is noted. Further south, at the industrial facility, the following new features are noted: an area with disturbed ground (DG), a smokestack (Stack), and an impoundment containing standing liquid. West of the industrial facility, most of the probable raw materials observed in 1943 have been removed.



INTERPRETATION CODE

———	SITE BOUNDARY
←– – –	DRAINAGE
←———	FLOW
– – – –	TRAIL
+++++	RAILWAY
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
A	ACCESS ROAD
B	BUILDING
DB	DEBRIS
DG	DISTURBED GROUND
DT	DARK-TONED
EX	EXCAVATION AREA
FA	FILL AREA
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANKS
IM	IMPOUNDMENT
LG	LAGOON
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
MT	MEDIUM-TONED
OF	OUTFALL
OS	OPEN STORAGE AREA
RV	REVEGETATED
SL	STANDING LIQUID
ST	STAIN
SW	SOLID WASTE
UO	UNIDENTIFIED OBJECTS
*	COLLATERAL DATA

Figure 5. Industrial Enterprises site, February 14, 1953. Approximate scale 1:6,490.

SEPTEMBER 25, 1957 (FIGURE 6)

The approximate location of the floodplain initially identified and delineated on the 1938 photograph (Figure 3) is represented by dashed lines on this photograph.

Along the western site boundary, construction of Quad Avenue* has bisected the farmstead property and it is possible that the level of activity of the agricultural and livestock operations at the farmstead has been reduced. Since 1953 deposition and manipulation of fill materials has occurred on Hill-1 and on the portion of the floodplain that was located between the northern side of Hill-1 and the northeastern site boundary. These fill materials include light-toned probable fill (FL) and possible solid waste material (SW). North of Hill-1, a row of evenly-spaced pylons demarcates the pre-existing marshland to the west and the newly filled portion of the floodplain to the east. Hill-1 now appears to be a staging area for probable landfilling operations onsite and includes the following features: lagoon (LG-1) containing dark-toned standing liquid, irregularly shaped mounds of possible solid waste, a ground surface primarily comprised of stained (ST) and disturbed ground, an accumulation of probable storage containers (lack of photographic resolution precludes positive identification of drums), numerous dump truck vehicles, and expansion (not annotated) of access road A2. North of Hill-1 and west of the row of pylons, the flow of water from the marshland has ponded (annotated as Probable Pond), probably as a result of the blockage formed by the deposition of fill material. East of the row of pylons, the following features are observed: a new access road (A3), numerous rectangular containers, an extensive mound of probable fill material with a stain on its northern side, and two lagoons (LG-2 and LG-3) containing dark-toned standing liquid (DTSL).

Outside the northern site boundary, on the eastern portion of the 68th Street Dump site, an area with probable construction activity is noted. Along the southern side of this area, a new building has been installed. From the southwestern side of the new building, a pipe extends southward to a possible outfall (OF) at the unnamed stream. At the industrial facility to the south, the following new features are noted: an open storage area (OS) containing accumulations of probable solid waste; a pit; disturbed ground; two new impoundments containing standing liquid; an area with medium-toned material (MTM); and an impoundment under construction.

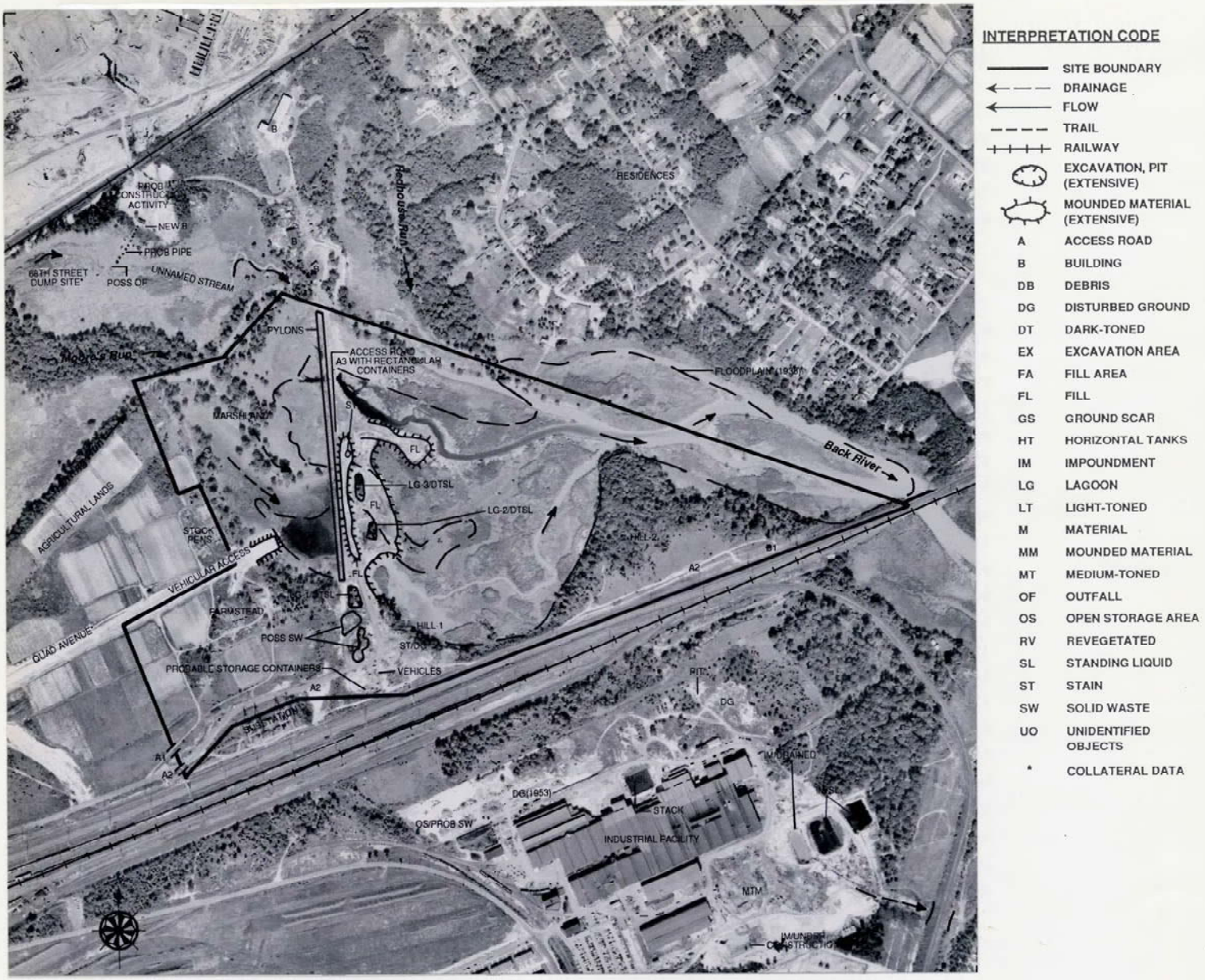


Figure 6. Industrial Enterprises site, September 25, 1957. Approximate scale 1:6,700.

AUGUST 2, 1960 (FIGURE 7)

The southwestern portion of the site is located near the edge of both film transparencies of the stereo pair, and was partially viewed monoscopically. This portion of the site appears relatively unchanged since 1957. Due to the location of the site near the edge of the film transparency selected for enlargement, the southwestern corner of this portion of the site was omitted.

The farmstead property appears relatively unchanged since 1957. The row of pylons observed in 1957 now supports a sewer pipe*. Both ends of this sewer pipe remain buried, so an outfall point is not discernible. The previously discrete Hill-1 has merged with a new fill area (FA-1), which is filled with medium-toned material. Since 1957, the extent and contents of lagoon LG-1 have increased to the south, where the material comprising the irregularly shaped mound of probable solid waste observed in 1957 now appears to be scattered. The ground surface remains primarily comprised of stains, graded fill, disturbed ground, and accumulations of probable solid waste, which exhibit a mottled surface appearance. Lack of photographic resolution precludes the identification of the probable storage containers observed in 1957. Near the southern site boundary, numerous vehicles remain discernible on and around access road A2. To the north and west of the sewer pipe, revegetation obscures the probable pond observed in 1957. East of the sewer pipe, the two lagoons (LG-2 and LG-3) continue to contain dark-toned standing liquid and a fourth lagoon (LG-4) containing dark-toned standing liquid has been installed. Although these lagoons are not readily discernible on the print, resolution of their locations was possible through stereoscopic analysis of the photo transparencies. Access road A3 has been extended past the northeastern site boundary, where a culvert bridge is now present. This bridge provides access to the eastern portion of the adjacent 68th Street Dump site, where a new incinerator stack has been installed and probable waste disposal containers are noted. A ground scar is visible at the previous location of probable construction activity.

At the industrial facility to the south, a water tower has been erected.

INTERPRETATION CODE

	SITE BOUNDARY
	DRAINAGE
	FLOW
	TRAIL
	RAILWAY
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
A	ACCESS ROAD
B	BUILDING
DB	DEBRIS
DG	DISTURBED GROUND
DT	DARK-TONED
EX	EXCAVATION AREA
FA	FILL AREA
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANKS
IM	IMPOUNDMENT
LG	LAGOON
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
MT	MEDIUM-TONED
OF	OUTFALL
OS	OPEN STORAGE AREA
RV	REVEGETATED
SL	STANDING LIQUID
ST	STAIN
SW	SOLID WASTE
UO	UNIDENTIFIED OBJECTS
*	COLLATERAL DATA

Figure 7. Industrial Enterprises site, August 2, 1960. Approximate scale 1:7,440.

MAY 18, 1964 (FIGURE 8)

Since 1960 a vehicle parking lot has been installed at the eastern end of Quad Avenue, and is adjacent to where a new access road (A4) begins. Access road A4 extends along the northern and eastern sides of the remaining farmstead buildings. South of the farmstead, there are land parcels with solid waste and ground scars, where the network of roads has expanded (not annotated). Within the western site boundary, possible stock pens are located southwest of the farmstead.

East of the sewer pipe, at fill area FA-1, the location of the four lagoons (LG1 through LG4) observed in 1960 is now covered by with medium-toned material. Fill area FA-1 now extends eastward from access road A3 to the Back River. Along the northeastern base of this fill area, in the adjacent floodplain channel, a plume is discernible. Dump truck-sized mounds of material (MM) are visible on the graded surface of fill area FA-1. Near the southern site boundary and west of Hill-2, a graded ground surface is noted. At Hill-2, the following features are noted since 1960: most of the canopied vegetation has been removed from the central portion of Hill-2, a trail (Trail-2) extends between two ground scars (GS-1 and GS-2), north of building B1, a filled pad bearing a process structure has been installed. Off the northern side of Hill-2, a pool of dark-toned liquid (DTL) is identified as a possible pooling of leachate from the adjacent filled area. Near the western site boundary, the stock pens have been removed from north of the farmstead. The removal of these stock pens is possibly associated with the following nearby features: a ground stain, an accumulation of probable debris (DB), and a trail (Trail-3) which leads both northward to an area with a ground scar and a stain, and southward to possible stock pens.

At the adjacent 68th Street Dump site to the north, dark-toned stains are visible north of the incinerator stack. At and along the western side of a former ground scar, an area with light-toned probable fill material and disturbed ground is identified. An increase in the quantity of waste disposal containers indicates an increased level of waste disposal operations. At the industrial facility to the south, the following new features are noted: an increase in the number of structures (not annotated), a previously observed pit that now contains standing liquid and a new pit containing standing liquid.

Figure 8. Industrial Enterprises site, May 18, 1964. Approximate scale 1:6,630.

FEBRUARY 21, 1966 (FIGURE 9)

Since 1964, apparent dismantling of the farmstead and the previously observed possible stock pens appears to be associated with nearby debris and vehicles. Scattered solid waste remains present near the southwestern corner of the site.

At the northern end of the sewer pipe, dark-toned probable fill material has been placed over a portion of the sewer pipe. To the south, the surface of fill area FA-1 appears smoother since 1964. It is probable that the dump truck-sized mounds of fill material observed in 1964 have been graded flat. The outline of the plume previously discerned along the northeastern base of this fill area remains discernible, due to new vegetation. Accumulations of mounded materials remain on the surface of fill area FA-1 and along the western side of access road A3. Further south, a probable berm comprised of light-toned fill material is present. To the east, the graded ground surface observed in 1964 is revegetating. At Hill-2, Trail-2 and ground scar GS-1 remain visible and the remaining ground surface has been occupied by a probable auto salvage yard. The contents of this facility obscure the following features which were observed in 1964: ground scar GS-2, the filled pad, and the process structure. Off the northern side of Hill-2, the pool of dark-toned liquid is identified as possible pooling of leachate from the adjacent filled area.

At the adjacent 68th Street Dump site, the presence of waste disposal containers is noted. The incinerator stack and nearby dark-toned stains remain visible. Probable construction activity is noted at an area previously observed with fill and disturbed ground. An unnamed stream present along the southern side of this area flows southward toward the confluence of Moore's Run and Herring Run. Outside the western site boundary, Trail-3 remains visible, the area where a ground scar and a stain were observed in 1964 has revegetated; also, the stain and accumulation of probable debris are no longer visible. Two new buildings have been installed on the northern side of Quad Avenue. At the industrial facility to the south, the following new features are noted: construction activity and disturbed ground.

Figure 9. Industrial Enterprises site, February 21, 1966. Approximate scale 1:7,220.

OCTOBER 1968 (FIGURE 10)

The farmstead, now identified as probably abandoned, and a portion of Trail-3 remain visible since 1966. South of the probable abandoned farmstead, the previous locations of vehicles, debris, and solid waste are obscured by revegetation.

Within the northern site boundary, the dark-toned probable fill material observed in 1966 is now identified as a trail (Trail-4), which leads westward to an area with ground scarring and staining. To the south, on the marshland observed in 1966, a graded fill area (FA-2) has been established. At the eastern end of Quad Avenue, the vehicles observed in 1966 have been removed. The surface of fill area FA-1 and the berm appear to be revegetating. The location of the plume previously discerned along the northeastern base of this fill area is not readily discernible. The addition of fill material to the southern side of FA-1 since 1966 is noted. Further south, the graded ground surface visible since 1964 has revegetated. At Hill-2, most of the contents of the probable auto salvage yard evident in 1966 have been removed. Trail-2 has expanded into a road network and ground scar GS-1 remains visible.

Outside the northern site boundary, at the adjacent 68th Street Dump site, solid waste disposal operations appear to be ongoing. The previously observed unnamed stream now appears to originate from a new empty pond*, which has been established along the south side of an area where probable construction activity was evident in 1966. Outside the western site boundary, a new building has been installed on the northern side of Quad Avenue. South of the southern railway, a probable commercial area is noted. At the industrial facility to the south, the following new features are noted: the areal extent of the open storage area containing solid waste has been expanded to the north and an area with light-toned material. Reproduction of a blacked out area in the southeastern corner of this print was due to the location of the site near the edge of the film transparency and does not indicate a film imperfection.

Figure 10. Industrial Enterprises site, October 1968. Approximate scale 1:7,200.

NOVEMBER 5, 1971 (FIGURE 11)

Within the northern site boundary, a new fill area (FA-3) obscures the former locations of Trail-4, the area with ground scarring and staining observed in 1968, and a portion of the sewer pipe. To the south, a new excavation area is present along the southern side of FA-2. Since 1968 the addition of fill material along the southern side of FA-1 and a new culvert bridge at the easternmost side of FA-1 are noted. Trails are noted on the surface of fill area FA-1. The surfaces of the three fill areas (FA-1, FA-2, and FA-3) exhibit grading and revegetation. At Hill-2, the top is now identified as a probable extraction area with a graded ground surface. It is possible that the topsoil from Hill-2 has been used on the three fill areas in the site. North of building B1, disturbed ground and unidentified objects are present.

To the north, at the adjacent 68th Street Dump site, an increase in solid waste disposal operations is indicated by an increase in the quantity of probable waste disposal containers. The incinerator stack remains visible. The pond now contains standing liquid and drainage from it flows southward via the unnamed stream. Outside the western site boundary, a new building has been installed on the northern side of Quad Avenue. South of the southern railway, a commercial area is identified. At the industrial facility to the south, the following new features are noted: an area with light-toned material and standing liquid, two new impoundments containing standing liquid, and an area with medium-toned mounded material (MTMM) and dark-toned staining.

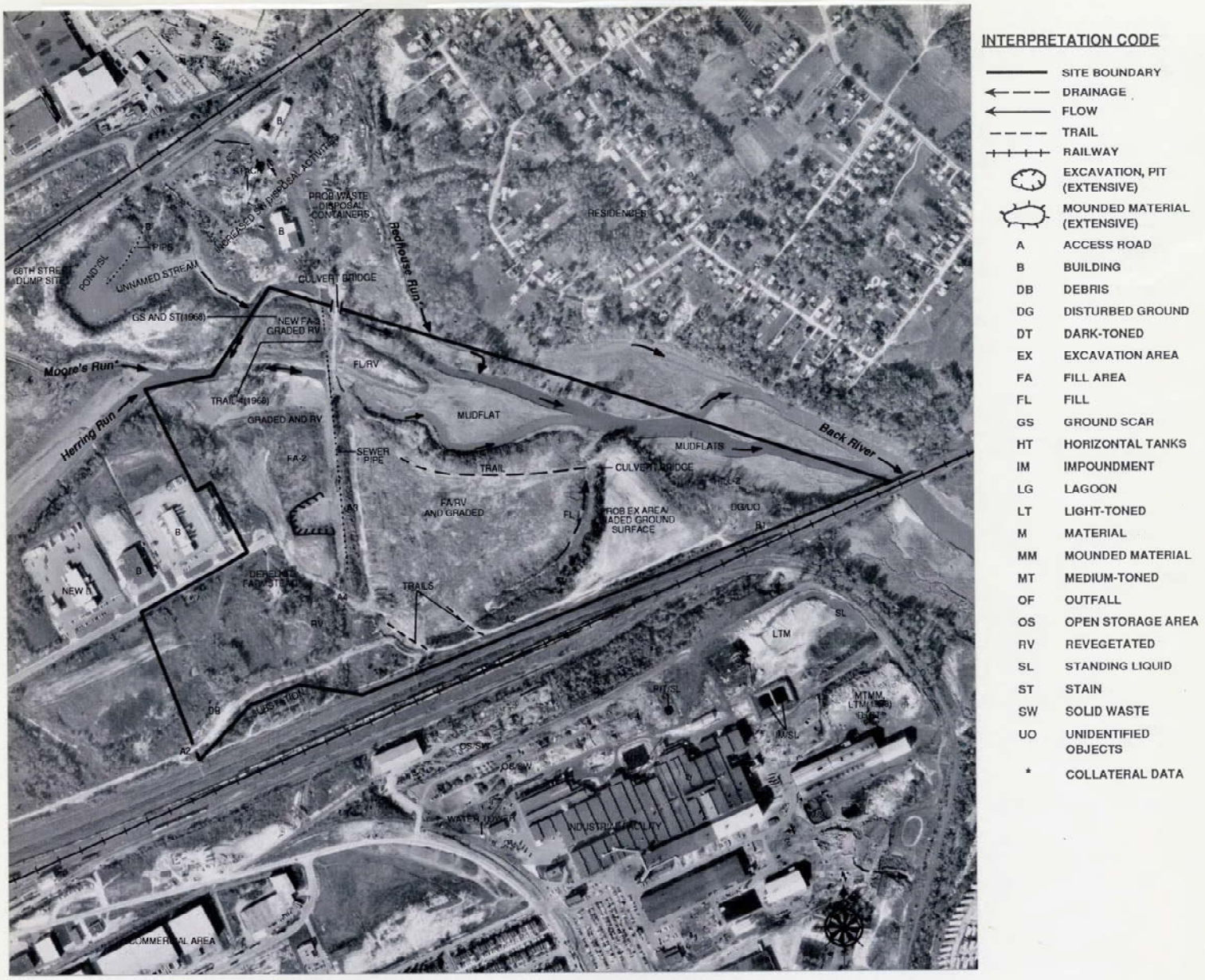


Figure 11. Industrial Enterprises site, November 5, 1971. Approximate scale 1:7,000.

JUNE 14, 1973 (FIGURE 12)

At Hill-2, building B1 has been removed. At the eastern end of Quad Avenue, delineation of the northern face of the embankment is noted. The remainder of the site appears relatively unchanged since 1971.

Outside the northern site boundary, at the adjacent 68th Street Dump site, solid waste disposal activities appear ongoing and southward flow from the pond has been modified with channelized drainage (CD). At the industrial facility to the south, the following new features are noted: an impoundment containing dark-toned material, an area with light-toned material and standing liquid, and an area with light-toned material.

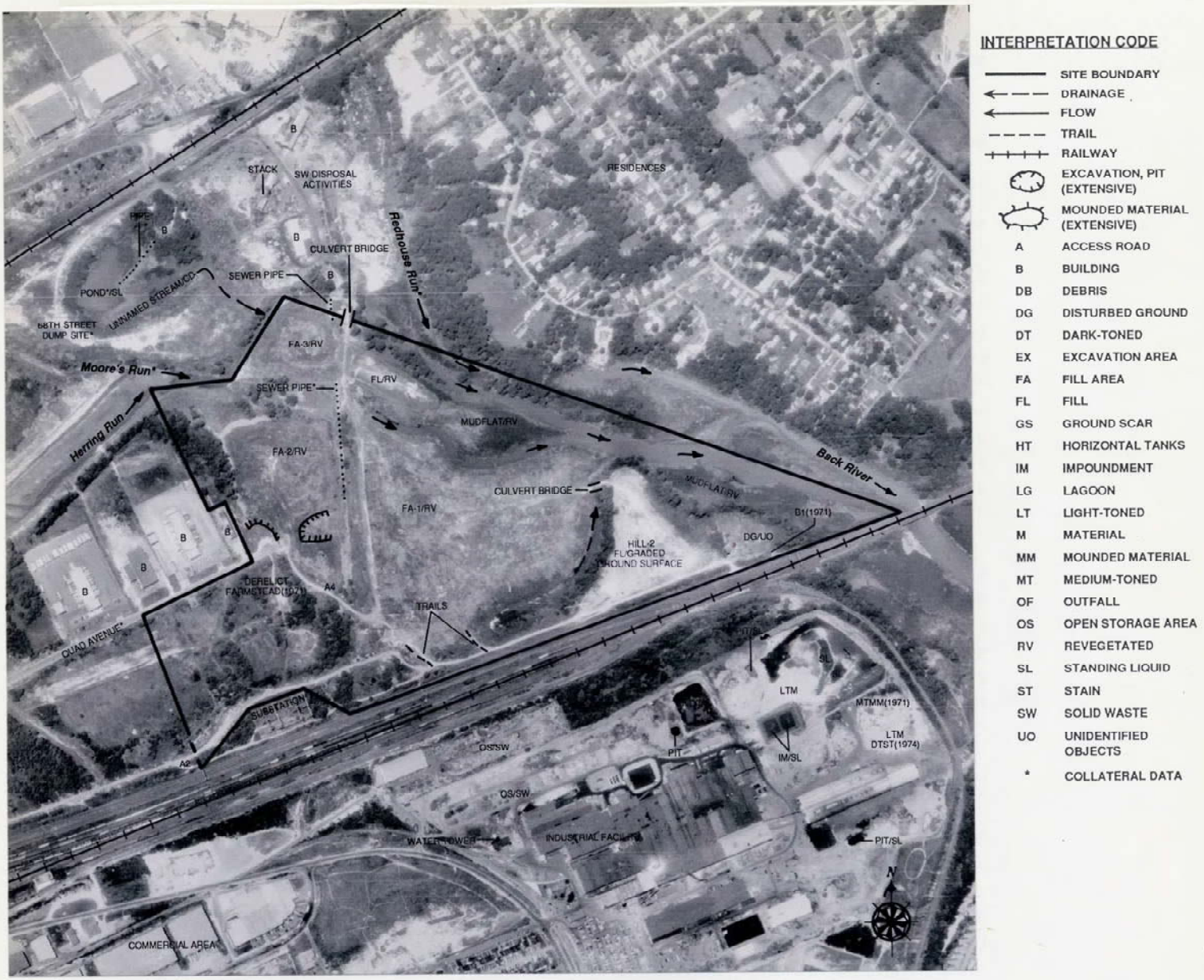


Figure 12. Industrial Enterprises site, June 14, 1973. Approximate scale 1:7,000.

NOVEMBER 3, 1984 (FIGURE 13)

Stereoscopic coverage of this date analysis was not available, so the analysis was done monoscopically on the single photo transparency.

Revegetation partially obscures the length of the sewer pipe and the excavation area located along the southern side of FA-2. Beyond the northeastern end of Quad Avenue, a ditch has been established since 1984. This ditch separates a discrete, flat-topped portion of fill material, now identified as a mound, from the rest of fill area FA-2. A gap now present between the flat-topped mound and the northeastern side of Quad Avenue is noted. From the southwest corner of the site, a segment of access road A1 extends northward to this flat-topped area. Debris is visible along the eastern side of this segment of access road A1. At Hill-2, the ground surface is revegetating. An area with ground scarring remains visible near the southeastern corner of Hill-2, where revegetation obscures the disturbed ground and unidentified objects visible in 1973.

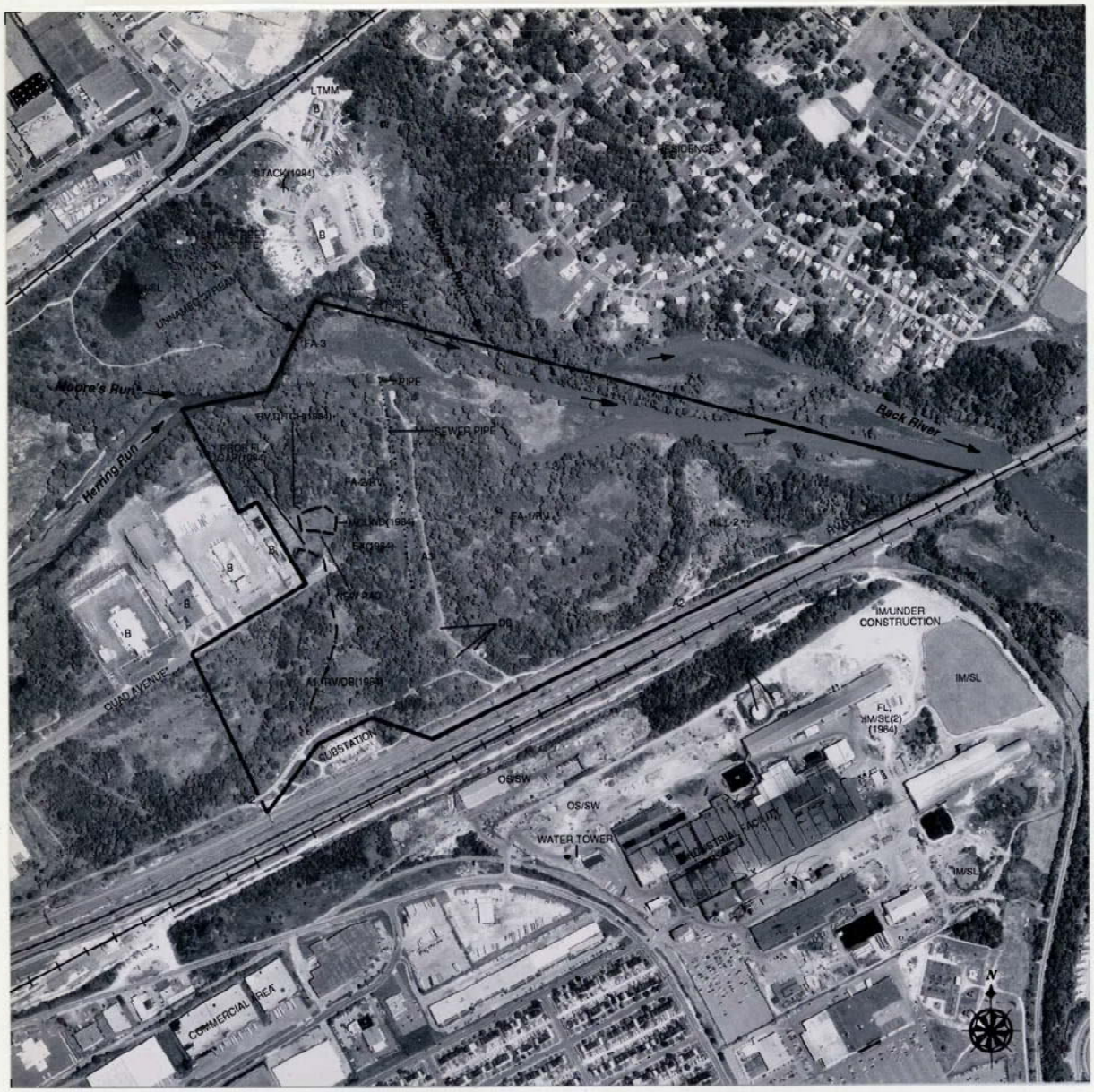
Outside the northern site boundary, at the adjacent 68th Street Dump site, a previously observed pipe has been removed from the eastern side of the pond, which continues to drain southward via the unnamed stream. East of the pond, the incinerator stack remains visible. At the industrial facility to the south, the following new features are noted: two new vertical tanks (VT), an area with light-toned mounded materials, and two impoundments under construction.

Figure 13. Industrial Enterprises site, November 3, 1984. Approximate scale 1:7,110.

MAY 21, 1992 (FIGURE 14)

Revegetation of the site partially obscures the following features observed in 1984: the sewer pipe the northern side of the ditch the excavation area located along the southern side of fill area FA-2, and the eastern side of access road A1, where debris was observed in 1984. From the southwest corner of the site, a segment of access road A1 continues to extend northward to a new earthen pad. At this pad, probable fill material occupies both the gap and the southern side of the ditch observed in 1984. Near the southern end of access road A3, three areas containing debris are noted. Near the southeastern corner of Hill-2, revegetation obscures an area previously observed with ground scarring.

Outside the northern site boundary, the incinerator stack observed from 1960 to 1984 has been removed. At the industrial facility to the south, the following new features are noted: an impoundment under construction, a previously observed impoundment now containing standing liquid, and two previously observed impoundments have been filled.



INTERPRETATION CODE

———	SITE BOUNDARY
←– – –	DRAINAGE
←———	FLOW
– – – –	TRAIL
+++++	RAILWAY
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
A	ACCESS ROAD
B	BUILDING
DB	DEBRIS
DG	DISTURBED GROUND
DT	DARK-TONED
EX	EXCAVATION AREA
FA	FILL AREA
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANKS
IM	IMPOUNDMENT
LG	LAGOON
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
MT	MEDIUM-TONED
OF	OUTFALL
OS	OPEN STORAGE AREA
RV	REVEGETATED
SL	STANDING LIQUID
ST	STAIN
SW	SOLID WASTE
UO	UNIDENTIFIED OBJECTS
*	COLLATERAL DATA

Figure 14. Industrial Enterprises site, May 21, 1992. Approximate scale 1:7,310.

FEBRUARY 9, 1998 (FIGURE 15)

The approximate location of the floodplain initially identified and delineated on the 1938 photograph (Figure 3) is represented by dashed lines on this photograph. The site appears inactive, with no environmentally significant developments since 1992.

Outside the northern site boundary, the pond containing standing liquid continues to drain southward. At the industrial facility to the south, the following new features are noted: a new vertical tank and a previously observed impoundment now containing standing liquid.

INTERPRETATION CODE

	SITE BOUNDARY
	DRAINAGE
	FLOW
	TRAIL
	RAILWAY
	EXCAVATION, PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
A	ACCESS ROAD
B	BUILDING
DB	DEBRIS
DG	DISTURBED GROUND
DT	DARK-TONED
EX	EXCAVATION AREA
FA	FILL AREA
FL	FILL
GS	GROUND SCAR
HT	HORIZONTAL TANKS
IM	IMPOUNDMENT
LG	LAGOON
LT	LIGHT-TONED
M	MATERIAL
MM	MOUNDED MATERIAL
MT	MEDIUM-TONED
OF	OUTFALL
OS	OPEN STORAGE AREA
RV	REVEGETATED
SL	STANDING LIQUID
ST	STAIN
SW	SOLID WASTE
UO	UNIDENTIFIED OBJECTS
*	COLLATERAL DATA

Figure 15. Industrial Enterprises site, February 9, 1998. Approximate scale 1:7,110.

GLOSSARY

Access Road - A paved or unpaved route of vehicular access.

Berm/Dike - An embankment of either natural or man-made materials that impounds liquids, solids or other materials, or controls flood waters.

Channelized Drainage (CD) - A man-made or altered drainage route.

Dark-, Medium-, or Light-Toned - Tones of features in question are compared with the darkest and lightest tones of gray (if using B&W photography) on the print.

Debris - The remains of anything that can be identified as being broken down, destroyed, demolished, or dismantled.

Disturbed Ground (DG) - A rough area where the ground surface has been dug up or overturned.

Excavation Area (EX) - An area where earth or other material is being removed in order to alter the ground level (e.g., building construction).

Extraction Area - An area where earth or other material is being removed for specific use elsewhere (e.g., quarry, sand and gravel pits, etc.).

Fill (FL) - Earth, stones, or other material that is used to build up the level of an area of ground.

Fill Area (FA) - An area where material is being deposited to fill a depression; or area where materials have been added, altering the elevation of the ground surface.

Graded Area - An area where the surface of the ground has been leveled or altered by a vehicle pulling or pushing a wide blade.

Ground Scar (GS) - An area of bare soil, apparently the result of human activity.

Impoundment (IM) - A liquid containment area that appears to be related to activity on a site but does not appear to be used for waste storage, disposal and/or treatment.

Lagoon (LG) - A liquid containment area that is apparently used for waste storage, disposal and/or treatment. A lined lagoon has an artificial barrier or liner to prevent migration of waste material into the soil.

Material - Raw or waste materials on or in the vicinity of the site.

Mounded Material (MM) - Piles of raw or waste materials on or in the vicinity of the site.

Open Storage Area (OS) - An area of open-air (outdoor) storage of containerized, raw or waste materials, within industrial or manufacturing sites.

Outfall (OF) - The place where an effluent is discharged into the environment.

Pit - A steep-sided hole in the ground surface.

Plume - The detectable emission from an outfall or smokestack.

Solid Waste (SW) - Any garbage, refuse, or sludge from a waste treatment, water supply treatment plant, or air pollution control facility, and other discarded material, including solid or semi-solid material resulting from industrial, commercial, mining, and agricultural operations, and from community activities; does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges.

Stain (ST) - A residue or discoloration resulting from a spill, discharge, or removed/dispersed materials.

Standing Liquid (SL) - A small, shallow, temporary collection of liquid, not necessarily waste. Not to include liquid contained in impoundments, trenches, pits, etc.

Tanks - Vertical tanks (VT), horizontal tanks (HT), pressure tanks (PT), tank farms, and solid waste management units. A large receptacle, container, or structure for holding liquid or gas.

Trench (TR) - A long, narrow excavation unrelated to drainage.

REFERENCES

MAPS

Source[a]	Figure	Name	Scale	Date
USGS	1	United States	1:2,500,000	1972
USGS	2	Baltimore East, MD	1:24,000	1974
USGS	2	Middle River, MD	1:24,000	1985

COLLATERAL INFORMATION

EPA. 1997. Project Number TS-PIC-9703332S. Aerial Photographic Analysis: 68th Street Dump, Baltimore County, Maryland.

EPA. 1999. Site map supplied by EPA Region 3 as attachment to Remote Sensing Services Request Form. 6 pp.

EPA. 2000. Internet address http://www.epa.gov/oerrpage/superfund/sites/npl/nar1540.htm.

LESAT (Lockheed Environmental Systems & Technologies Co.). 1999. Master Quality Assurance Project Plan. Prepared for EPA Environmental Sciences Division. Contract 68-C5-0065. Las Vegas, Nevada.

AERIAL PHOTOGRAPHS

Photo source[a]	Figure[b]	Date of acquisition	Original scale	Film type[c]	Mission I.D.	Source frame #
NARA	3	04-23-38	1:20,000	B&W	AJO-8	143,144
NARA	4	04-25-43	1:24,000	B&W	DCO-7	144,145
KVT		04-16-50	1:10,000	B&W	RG373-ON4203	294-296
ASCS	5	02-14-53	1:20,000	B&W	AJO-8K	146,147
ASCS	6	09-25-57	1:20,000	B&W	AJO-5T	32,33
NOS	7	08-02-60	1:20,000	BIR	C&GS-L	320,321
ASCS	8	05-18-64	1:20,000	B&W	AJO-1DD	188,189
USGS	9	02-21-66	1:24,000	B&W	GS-VBLA	108-111
AIRPHO	10	10-00-68	1:24,000	B&W	V-6810	57,8
AIRPHO		03-05-69	1:24,000	B&W	V-693	31-33

(continued)

AERIAL PHOTOGRAPHS (continued)

Photo source[a]	Figure[b]	Date of acquisition	Original scale	Film type[c]	Mission I.D.	Source frame #
ASCS	11	11-05-71	1:20,000	B&W	AJO-7MM	56,57
AIRPHO	12	06-14-73	1:20,000	B&W	V736	191,192
AIRPHO		10-00-75	1:24,000	B&W	VW-7510	37,38,248
USGS		04-02-81	1:58,000	CIR	NHAP80	50-52
EPA	13	11-03-84	1:24,000	CC	-	3201
ASCS		04-10-88	1:40,000	B&W	NAPP-6	151-154
AIRPHO	14	05-21-92	1:24,000	B&W	VS925-226-35	68,69
ASC		10-11-94	1:48,000	CC	ASC94-15	10,11
ASCS	15	02-09-98	1:40,000	B&W	NAPP10577	19-22

[a]AIRPHO Air Photographics, Inc., Martinsburg, Virginia
ASC Air Survey Corporation, Sterling, Virginia
ASCS U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service, Salt Lake City, Utah
EPA U.S. Environmental Protection Agency, Characterization Research Division, Las Vegas, Nevada
KVT King Visual Technology, Hyattsville, Maryland
NARA National Archives and Records Administration, Washington, D.C.
NOS National Ocean Service, Coast and Geodetic Survey, Washington, D.C.
USGS U.S. Department of Interior, U.S. Geological Survey, Washington, D.C.

[b]Photographs listed with no figure number were analyzed but not placed in this report because no significant features or changes had occurred since the previous photographs

[c]B&W Black-and-white
CC Conventional Color
BIR Black and White Infrared